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BUBONIC PLAGUE ON THE WEST COAST OF SOUTH AMERICA IN 1934

By JOHN D. LONG, *Medical Director, United States Public Health Service, Traveling Representative, Pan American Sanitary Bureau*

Bubonic plague first made itself manifest on the west coast of South America in 1903. The first cases were discovered in the ports of Pisco and Callao, Peru, in April of that year. The disease appeared in ports of Chile at almost the same time, but it was not discovered in Ecuador until plague-infected rats, soon followed by human cases, were found in the port of Guayaquil in 1908. A total of 36,251 cases of plague has been reported from these 3 countries in the 31 years since the disease first made its appearance in Peru and Chile.

CHILE

From the discovery of the first case of plague in Chile in 1903 until the date of the last case in January 1930, a total of 5,200 human cases has occurred. All of the principal Chilean ports have had the disease, including the larger ports of Valparaiso, Antofagasta, and Iquique. The last human case occurred in the port of Antofagasta in January 1930, and the last plague-infected rats discovered were trapped in the city of Antofagasta in August 1932.

With the exception of a few cases that occurred in Santiago and a few other towns near the coast, at the time that infection existed in Valparaiso, the disease was confined to the seaports.

ECUADOR

Since the discovery of the first cases of plague in Guayaquil in 1908, a total of 10,469 cases has occurred in the Republic of Ecuador. From Guayaquil the disease spread, via the Guayaquil and Quito Railroad, to the interior towns and villages along and in the vicinity of the right-of-way of the line, and to the Indian villages and towns in the interandine region.

Through the coastwise maritime traffic the disease reached the ports on the Pacific coast, as well as certain towns and villages adjacent to them, and, via the river traffic, a number of localities on the Babahoyo, Daule, and Guayas Rivers. The last cases of the disease in the coast region occurred in the city of Guayaquil on

March 26, 1930. The ports on the Pacific coast and adjacent towns and villages, as well as the places on the Guayaquil and Quito Railroad, coast section, and the localities on the rivers had been freed from the disease some time previously. It persisted in certain Indian villages of the interandine region until the occurrence of the last cases¹ in the village of Sevilla near the railroad town of Alausi in June 1934. Cases were reported as suspected plague² from the Province of Loja³ in December 1934.

PERU

Since the first appearance of plague in Peru in April 1903, a total of 20,582 cases has occurred in approximately 630 different localities.

Intensification of antiplague measures, in cooperation with the Pan American Sanitary Bureau, was begun in October 1930, and since that date cases of bubonic plague have occurred, by month, as follows:

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total	Number of foci
1930.....	56	29	16	36	26	26	11	22	13	28	37	78	378	-----
1931.....	36	28	9	16	23	11	3	22	2	27	28	16	200	-----
1932.....	11	2	1	2	5	2	1	2	2	6	10	13	57	33
1933.....	5	19	7	1	5	5	6	7	5	18	19	12	107	58
1934.....	7	6	10	7	0	1	0	2	3	3	2	5	46	31

The cooperative campaign is still being actively carried on, and it is hoped that there will be even further reductions in the number of cases and foci in 1935.

EXPERIENCES AND OBSERVATIONS IN 1934

DISEASES OTHER THAN PLAGUE FOUND IN RATS

About 12 guinea pigs that had been inoculated from rats trapped in Lima and Callao have died from icterohemorrhagic jaundice, or Weil's disease. One human case of this disease, not fatal, occurred in Callao in the person of an employee of the Frigorifico Nacional, the abattoir and refrigerating plant that supplies Lima and Callao and the neighboring towns with meat and meat products.

¹ Four cases and 3 deaths from plague occurred in the Province of Chimborazo during February 1935. None has been reported since that date.

² Under date of Apr. 3, 1935, Dr. C. Velasco, Director General of Public Health of the Republic of Ecuador, reported: "In the Province of Loja, plague has occurred from time to time since September 1934. In February 1935 there were 18 cases and 7 deaths in this Province. We were unable to state the number of cases prior to February for the reason that the infected localities are without roads, and the plague commission sent to make the investigation was delayed many days in their journey. However, my predecessor reported a case of plague in Amaluza, Province of Loja. * * * Three cases and 1 death occurred in Amaluza (sector) in March 1935."

³ Dr. Ramos Diaz, named traveling representative of the Pan American Sanitary Bureau, upon recommendation of the author, visited Ecuador in February 1935, and in cooperation with Ecuadorian authorities confirmed the existence of plague in the Province of Loja.

(The information given in the above footnotes was received after this report had been written.—Ed.)

In the beginning of the cooperative antiplague work, a very large proportion of the rats trapped were found to have abscesses in various organs, especially in the liver and lungs, and many of them had intestinal worms and other parasites, cysts in the liver, skin diseases of varying types, and healed scars and adhesions in the chest and abdomen. It is now relatively rare to encounter any of these conditions. Since the rat population in Lima, Callao, and neighboring towns has been reduced through the antiplague measures by about 60 to 70 percent, according to the trapping statistics and indices, it is thought that the diminution in these diseases and infections, as well as the reduction in plague incidence, is due to less opportunity for contact. The rats are no longer distributed more or less uniformly throughout the cities as they were formerly. They now seem to be distributed in colonies and groups of varying sizes in the vicinity of markets, the garbage dumps, and in and near certain factories, such as food manufacturing establishments, certain warehouses, lumber yards, truck gardens, and similar localities. The trappers have learned by experience that it is useless to attempt to trap rats in some localities, as their efforts are practically certain to be without result. Some of these relatively rat-free areas are quite extensive when measured on the maps of the cities where trapping is being done.

Several rats with lesions quite suggestive of plague were found to have unknown bacterial infections that were not plague. One was believed, from the cultural reactions, to have been infected with pseudotuberculosis. No trichinosis has been found.

LATENT OR INAPPARENT PLAGUE

It is rare to find a rat at autopsy with visible lesions of plague. Most of the plague infection among rats is discovered through the making of mass inoculations. To make mass inoculations, small pieces of spleen and liver and, at times, of glands are taken from each rat that comes to autopsy and then ground up in a mortar with a small amount of normal salt solution. One or more guinea pigs are then inoculated with a small portion of this emulsion or suspension by rubbing the smeared pestle over a scarified area on the belly of the animal. In the case of rats showing suspicious lesions or rats that have come from suspected sections, emulsions from individual or small groups of rats are used to inoculate separate guinea pigs.

Much thought and study have been given to this matter of latent plague, and, to help elucidate the problem, the following experiments were made: Over a period of some months, Laboratory Technician Hector Colichón Arbulu inoculated a series of healthy rats with plague-infected material by the scarification method. A certain number of the rats, although quite sick following the inoculations, did not die. A rat that had recovered was asphyxiated with hydrocyanic acid gas

30 days after recovery. No visible lesions of plague were discoverable at autopsy except the scar left at the site of inoculation. Stained microscopic slides made from the internal organs and glands of the rat were negative for plague. An emulsion made from the spleen, liver, and lymphatic glands of the animal, when inoculated into a guinea pig, killed the pig with typical bubonic plague.

Identical results were obtained from other rats, in one case in 60 days after apparent recovery and in another in 90 days. Ninety days is the longest latent period so far found.

Laboratory Technician Arquímedes Ramos Diaz conducted over a period of some months a series of feeding experiments described as follows: Healthy rats that had been under observation long enough to demonstrate that they were not plague-infected were fed the livers and spleens of guinea pigs that had died of proved plague.

One or two of the rats did not die or become infected. In the rats that became infected and died, the following observations were made: In one rat, only the cervical glands were involved; another had lesions only in the glands of the mesentery; and another had ulcers in the interior of the intestine that had not perforated the peritoneal coat of the organ. Virulent plague bacilli were recovered from the involved tissues in each case and also from the spleen and liver, thus showing that the usual terminal bacteriemia had been produced.

Following the above-described observations, more careful search was made for involved cervical and mesenteric glands and for intestinal involvement. As a result, a trapped rat was found that had a few small, whitish, elliptical intestinal plaques. These plaques were not ulcerated in the interior of the intestine and had not perforated the peritoneal layer. There were no signs of inflammation. The plaques were removed, and microscopic stained smears were made from them. A number of Gram-positive and negative micro-organisms were seen and also a few Gram-negative bipolar staining bacilli. A guinea pig was inoculated in the eyeball, a method that experience has shown to be useful where micro-organisms are scarce and of low virulence, and died in a few days. There were no typical lesions at autopsy; but since some suspicious-looking bacilli were seen, a second guinea pig was inoculated with an emulsion made from the eye, the spleen, and liver of the first pig. This pig died in 9 days of typical plague.

The above-mentioned rat had been trapped in sector 8, city of Lima, near the Central Market, a very resistant plague focus, and it is inferred that infection took place through the eating of the body of a rat that had died from plague in that locality.

It is thought that the above-mentioned experience also probably explains the recent sudden appearance of plague in the vicinity of the garbage dump that has been formed near the city garbage

crematory, where, owing to the limited capacity of the furnaces, a large amount of garbage and waste matter is dumped each day. It is quite a common practice for householders to throw dead rats into the garbage cans and even, in not infrequent instances, to remove rats from the traps of the antiplague service and throw them into the garbage cans to avoid, what they consider, the stigma of having rats found upon their premises. This practice is especially common among certain merchants who have food warehouses in the vicinity of the Central Market.

Adjacent to, and actually on, the garbage dump, there existed a number of pigstys that held some 300 hogs. These hogs were fed with garbage and other waste matter, such as swill from houses and hotels. Rats were numerous in and around the pigpens. Later the pigpens were ordered destroyed and the hogs were removed to another site farther from the city. As this removed the principal source of food supply, the numerous rats that were there at once invaded the houses nearby, with the result that a number of plague-infected rats were trapped and several human cases of plague occurred.

The rat migrations produced must have been extensive, as infected rats were trapped in houses and other places at quite some distance from the garbage dump. Constant trapping in the same sectors for some months previously had failed to reveal any rat infection, and such infection was not found until about 1 month after the pigpens had been destroyed and the hogs removed to another location.

About six weeks after the appearance of the first rat infection in Lima, an infected rat and a human case were found in Callao, a short distance from the railroad station. The railroad line passes close to the garbage crematory and the dump; and the Montserrate freight station, where much freight is handled and transshipped, is just across the right-of-way from the garbage crematory. It is thought that an infected rat was carried to Callao, probably in cargo.

LICE AND FLEAS AS RESERVOIRS OF PLAGUE

In June 1934, a young girl died of plague in the town of Villa Eten. A puncture of the involved axillary glands was made just a few hours before death occurred. At the same time, the laboratory technician picked nine lice (*Pediculus capitis*) from the head of the patient, placed them just as he found them in a clean glass bottle, and sent them to the laboratory in Lima by airplane. Upon arrival, the lice were triturated in a mortar with normal salt solution and inoculated into a guinea pig. The guinea pig died with typical bubonic plague. The guinea pig that had been inoculated with the material aspirated from the involved axillary glands also died of plague.

A number of head lice were then collected from healthy persons and placed upon plague-infected guinea pigs. These became infected with plague, as was proved by inoculation of a few of them into another guinea pig. A healthy guinea pig was then placed in a jar with the remaining infected lice but it did not develop plague. A repetition of the experiment gave exactly the same results.

These experiments would seem to indicate that, although head lice may become infected with plague, they are incapable of transmitting the disease. However, the phenomenon is not without epidemiological importance, because it is a well-known fact that the Indians of the high Andes are accustomed to kill the lice and fleas they catch on their own persons, or on the persons of others, and crush them with their teeth. The pharyngeal and tonsillar forms of plague (*angina pestosa*) have been relatively common among the Indians of the Andes, both in Peru and Ecuador.

Similar experiments carried out with the guinea-pig flea (*Rhopalosyllus caviicola*) gave identical results. The fleas became infected but were unable to transmit the disease to other guinea pigs. The guinea-pig flea is frequently found in the clothing and bedding of the Indians of the high Andes.

Identical experiments were carried out with the so-called human flea (*Pulex irritans*). These fleas became infected and, in turn, infected healthy guinea pigs.

Of over a thousand fleas collected from clothing, bedding, ponchos, saddle bags, and saddle blankets of mule drivers and other persons, between 80 and 90 percent were *P. irritans*. The remaining fleas consisted of *R. caviicola*, *X. cheopis* (a very few), and dog fleas (*Ct. canis*).

THE HUANCABAMBA AND ANDABAMBA OUTBREAKS OF PLAGUE

Huancabamba is a town situated in the high Andes at an elevation of about 3,000 meters above sea level. It is the capital of the province of the same name. Andabamba is a village in the Province of Cajamarca situated in the Andes at an elevation of about 2,500 meters. Neither Huancabamba nor Andabamba can be reached except by mule. There are no roads. Owing to the fact that all merchandise has to be carried on muleback, no rats, as yet, have reached either town. That rats do not exist in the towns is attested by the inhabitants and by the representatives of the Anti plague Service who have persistently carried on trapping operations without result.

Both Huancabamba and Andabamba are supplied with products such as cloth, salt, general merchandise, etc., from the Department of Lambayeque, principally the cities of Chiclayo and Lambayeque, by means of mule caravans or trains. These mule trains pass through the towns of Tucuma, Muchumi, Illimo, Pacora, and Jayanca, where

the people live who work the rice plantations of the district. Rats are numerous in the towns and in the rice fields, and both human and rodent plague has existed there.

The mule drivers pass their nights at certain posadas, or way-side inns, along the road. Some of the posadas are located in the towns mentioned. The posadas are almost always located on the outskirts of the towns near the rice fields, where the rats are numerous, in order to obtain pasture for the mules. Guinea pigs are quite commonly kept in these posadas and run loose in the interior of the establishments. The mule drivers usually sleep on the floor or on low benches, and the guinea pigs snuggle up against them for warmth during the cool periods of the night, thus affording ample opportunity for mutual interchange of fleas.

In Huancabamba, four cases of plague occurred in 1934. This was the first plague that had occurred in the whole province in over 3 years. The first case occurred in the person of a woman who conducted a posada in a place called Lacchán, and her sickness and death were preceded by an epizootic among the guinea pigs she maintained in the posada. It is believed that infected fleas were carried in the clothing and effects of the mule drivers, accustomed to pass the night in the posada, from the infected towns in the Department of Lambayeque, with the resulting infection of the guinea pigs and, later, of the woman.

Three cases occurred in the Andabamba outbreak, and the circumstances attendant upon them were in every way similar to the Huancabamba incident. Plague had occurred in Andabamba and neighboring towns several years previously, and the history of that outbreak was in every way similar to the outbreak under discussion, with the exception that, on that occasion, the first case was in the person of one of the mule drivers.

The other three cases in the Huancabamba outbreak were due presumably to infected guinea pigs bought in Lacchán and carried to Huancabamba city and to Sapalache, as in both instances the guinea pigs that had been bought and transported died within a few days of their arrival, and the human cases occurred later.

As extensive poisoning operations have been conducted in the Lambayeque rice districts, some 3 tons of poison having been used, and as these operations are still being conducted there, it is felt that Huancabamba and Andabamba will probably be protected against future infections. In fact, aside from the isolation of the sick when the cases occurred, in neither place were other measures taken. As there were no rats in either town, no other measures seemed to be indicated, except the cleaning up of the infected houses.

PLAGUE IN QUILLOAG, ECUADOR

The history of the outbreak in Quilloag is given as it seems to indicate that fleas, under certain circumstances, can act as both reservoirs and carriers of plague infection. The details were furnished by Dr. Carlos A. Mino, at that time the chief of the National Antiplague Service of Ecuador.

Quilloag is an Indian village in the Province of Canar, Ecuador, and, prior to the outbreak under discussion, had never been infected with bubonic plague. There are no rats in Quilloag,⁴ as attested to by the inhabitants and the failure to trap them despite persistent efforts.

An Indian, an itinerant vendor who resided in Quilloag, went to the town of Achupallas in the course of his business. Achupallas, despite its high altitude, 4,000 meters or more, and the cold—there are snow and ice there the greater part of the year—was formerly a quite resistant focus of plague. The disease was finally apparently eliminated, however, by an intensive campaign of extermination against guinea pigs and fleas, in the course of which many gallons of insecticide were used and practically the whole population was compelled to boil, sun, and in other ways disinfest their clothing and effects of fleas and other insects.

Upon the arrival at a place called San Antonio de Achupallas, the itinerant vendor noticed an empty hut containing clothing, bedding, and other effects and utensils. The hut was apparently uninhabited. Upon inquiry it was learned that the inhabitants had died a month or so previously of what later was believed to be unreported plague. On his return journey, after selling his merchandise, the Indian took such clothing and other articles from the hut as he desired and loaded them upon his mule. Upon arrival at Quilloag he turned the articles over to the women of his household with instructions to look them over and salvage such things as might be useful. The first cases of plague occurred among these women, and in the village as a whole some 45 cases of plague occurred. Such fleas as could be collected were identified and all proved to be *P. irritans*.

As the temperature at Achupallas is always very low, 10° C. or less, and the humidity is high, it would appear that the fleas contained in the clothing had survived from the time of the occurrence of the deaths some months previously and remained infective until reaching the lower and warmer altitudes of Quilloag, where they became once more active and caused the outbreak of plague.

⁴ This statement should probably be taken with caution. A similar statement with regard to the absence of rats in the infected regions in the Province of Loja, made on what was considered good authority, proved to be erroneous upon investigation. (Letter from Dr. Long, to Dr. B. J. Lloyd, of the Pan American Sanitary Bureau, Apr. 8, 1935.—Ed.)

ANTIPLAGUE MEASURES THAT HAVE BEEN USED

Ratproofing has not been done except in very isolated instances, as it is architecturally and economically impossible. In Guayaquil, the sanitary authorities have used ratproofing measures for a number of years.

The trapping of rats has been carried on continuously in all the larger cities and especially in the seaports in all three countries. It has not been carried on, however, as a rat-extermination measure; it has been done for the sole purpose of getting rats for laboratory examination in order to determine plague indices among them.

Systematic fumigation of shipping and maritime vessels has been carried on for obvious reasons. Since 1930 only in one instance were plague-infected rats found on a ship. All rats found after fumigation are examined in the laboratory.

The principal mainstay of the cooperative antiplague campaigns in Ecuador, Peru, and Chile has been systematic and wholesale use of rat poison.

Data are not available at the present moment as to the total amounts of poison used in Ecuador and Chile. However, in the city of Guayaquil,⁵ Ecuador, alone between 50 and 75 tons have been used over a period of slightly more than 5 years.

In Peru, from October 1930 to December 31, 1934, 282,600 kilograms (282.6 long tons) of poison have been used. This represents approximately 85,000,000 poisoned baits placed. In 1934 alone over 65,000 kilograms or 19,554,300 poisoned baits were used in the Republic of Peru. It is estimated on the basis of various observations as to the percentage of baits eaten, that between 8,000,000 and 9,000,000 rats have been destroyed in Peru in a little over 4 years. Poison is still being used in Peru at the rate of over 5 tons per month.

SUMMARY

1. The Republic of Chile, in accordance with the standards specified in the Pan American Sanitary Code, can be considered free from bubonic plague.

2. Plague in Peru has been reduced over a 31-year period from an average of about 664 cases per year to 46 cases in the year 1934, a reduction, as compared with the average annual number of cases, of 93 percent.

3. Valuable and highly suggestive epidemiological observations have been made; but, owing to lack of proper laboratory and other facilities, it has not been possible to arrive at definite conclusions or to make categorical statements regarding them.

4. All of us who have been actively engaged in the suppression of bubonic plague over a period of years believe that fleas under favorable

conditions as to temperature and humidity, especially low temperatures and relatively high humidities, can act as reservoirs of plague infection, carry it over long distances and, later, under favorable conditions, transmit the disease. The incidents cited in this article strongly indicate that head lice and guinea pig fleas can also act as reservoirs of plague infection and, under certain special circumstances, serve as the means by which plague infection is produced. Our views relative to the transportation of infected fleas in certain types of cargo were set forth in an article in the Pan American Sanitary Bulletin of November 1934 under the title "Experiences with Fleas as Carriers of Bubonic Plague." ⁵

EDITORIAL NOTES.—The following information regarding plague work in Ecuador was furnished by Dr. C. Velasco, Director General of Public Health of the Republic of Ecuador, under date of April 3, 1935:

Coast areas.—Deratization has been effected by poisoning and trapping, about 4,000 traps being used daily. Poisoning is resorted to four times a year, using each time about 30,000 pounds of poison distributed through 2,672,700 packages. The number of rats taken in traps was 10,128, and it is calculated that approximately 235,300 rats were killed by poison. No infection was found in 47,022 rats autopsied. It should be observed that suburbs are included in these reports.

Central zone.—In this zone 49,187 rats were taken. Two tons of poison, consisting of 810,700 packages, have been distributed. It is estimated that approximately 90,000 rats were destroyed. Only those showing suspicious symptoms were autopsied, but no infection was found.

Southern zone.—In this zone 12,068 rats were taken, 150,115 packages of poison were distributed, and it is estimated that 18,000 rats were destroyed by poisoning.

Measures.—All necessary measures have been enforced. In addition to poisoning and trapping, patients have been isolated, traffic has been supervised on railroads, and vaccination and other prophylactic measures have been enforced.

No cases of plague have been reported in the Province of Chimborazo since February. The disease is declining in the southern zone.

Reports of plague in various places in Peru for January and February 1935 gave 20 cases and 8 deaths for the 2 months, together with 15 infected rats found during the same period.—Ed.

⁵ "Experiencias con pulgas como portadoras de peste bubónica." By Drs. John D. Long and Benjamín Mostajo. Boletín de la Oficina Sanitaria Panamericana, November 1934, page 1016.

REPORT OF THE COMMITTEE ON MILK, CONFERENCE OF STATE AND PROVINCIAL HEALTH AUTHORITIES, 1935

For its 1935 report, the Committee on Milk has considered it advisable to give consideration to the problems which follow.

ADEQUATE ENFORCEMENT OF MILK LEGISLATION

There are many municipalities in this country which have good milk ordinances, but which are not properly enforcing them. The energy and efficiency of enforcement of milk ordinances play an even larger part in the results obtained than the mere passage or the actual wording of an ordinance. An ordinance is necessary, certainly, and it must be properly worded in order that there may be no doubt as to what the legal requirements are; but unless the ordinance is strictly enforced, little will have been accomplished.

For this reason the Committee believes that the citizens and health officers of municipalities should request an annual rating by the State health department of the local milk sanitation work in order that there may be no doubt whatever as to whether the local ordinance is being properly enforced. By this means a high degree of confidence in the quality and safety of the local milk supply will be engendered in the minds of the consumers, and this will be reflected in an increased milk consumption.

THE FOOD AND HEALTH VALUE OF MILK

The Committee considers it again desirable to emphasize the food value of milk. One of the members of the Committee (S. J. C.) has suggested, and the suggestion is approved by the Committee, that there be emphasized not only the food value of milk, but also its health value. In this connection, attention is directed to a recent book by Professor Sherman entitled "Food and Health."

THE NEED OF STANDARDIZING MILK CONTROL METHODS

One of the members of the Committee (G. C. R.) has suggested that this report should include a discussion of ways and means for making more uniform the practice of milk control in the United States by the adoption of the United States Public Health Service Milk Ordinance. The Committee feels that, while no compulsion should be used in securing the adoption of the uniform milk control procedure by American municipalities, all State and municipal health departments should be encouraged to give thoughtful consideration to the advantages of a uniform method of milk control. These advantages the Committee believes to be as follows:

- (1) If a municipality adopts a method of milk control which is uniform with that in use in a majority of other municipalities in the

Nation, the enforcement thereof will be facilitated by the fact that the health officer will have the advantage of the experience of a great many other health officers in enforcing the same type of ordinance. He can use standard inspection and record forms; and when questions of interpretation arise, he can quickly secure information as to interpretation elsewhere.

(2) When court cases occur, the local courts will be able to have reference to court decisions upon the same type of ordinance in many other localities. Hence the likelihood of favorable court decisions will be increased.

(3) If a municipality adopts a milk ordinance which is uniform with the milk ordinances of many other municipalities, its ordinance will be less subject to change by succeeding political administrations. In the past, milk ordinances have been too much subject to change by successive administrations. A local ordinance which was not the brain child of a previous administration would be less likely to be repealed or modified by the incoming administration.

(4) The uniform milk-control plan would bring about a standardization of milk grade labels, and this would eliminate much of the present confusion which exists in the minds of the traveling American public with reference to the multitude of different grade labels which it now encounters. The present confusion of grade labels has engendered in the mind of the milk consumer a distrust of all grade labels and, hence, a feeling of insecurity as to milk quality and safety. Standardization of grade labeling would therefore increase the confidence of the milk consumer in milk quality and safety, and should simultaneously increase milk consumption. This is desirable, not only from the standpoint of the public health, as previously indicated in this report, but also from the standpoint of the dairy industry.

THE IMPORTANCE OF PASTEURIZATION

The Committee wishes to emphasize the fact that all milk consumed should either have been properly pasteurized commercially or should be boiled or pasteurized at home in accordance with the following simple pasteurization instructions:

“Place the milk in an aluminum vessel on a hot flame and heat to 155° F., stirring constantly; then immediately set the vessel in cold water and continue stirring until cool.”

The Committee wishes to stress the importance of properly pasteurizing or boiling all milk supplies either commercially or at home, because only by this means can maximum safety be assured. Every precaution with which milk is surrounded, including pasteurization, is of course subject to “slips” in operation. Health examinations of herds and employees occasionally fail to disclose existing disease or

carrier conditions, and even frequent sanitary inspections do not prevent occasional violations. This includes the operation of pasteurization plants as well as those at farms; but the one thing which differentiates pasteurization from all other protective measures is that, while all other measures may fail to protect entirely even if they are properly applied, pasteurization will always protect if it is properly applied. Even if we examine every milker with the most modern methods, we will occasionally miss disease or carrier conditions; but if we assure ourselves that the proper temperature has actually been applied to milk for the proper time, we can be quite sure that the infection to which it may have been exposed up to that time has been nullified. It is for this reason that the Committee believes all milk should be pasteurized or boiled before it is consumed.

The Committee deems it only fair to report, however, that one of the Committee consultants (O. E. R.) advised against the inclusion of this item in the report. He expressed himself as feeling that the inclusion of this item would seem to create a feeling of complete distrust of certified milk and certain other high grades of raw milk supplies. He indicated that, while he had consistently urged the pasteurization of general milk supplies, he did not feel that he could subscribe to what was apparently such a sweeping condemnation of all kinds of milk except Grade A Pasteurized.

THE IMPORTANCE OF PROPER MILK-PRODUCTION METHODS

In this connection the Committee wishes to stress the importance of proper production methods not only for any milk which is sold raw but also for all milk which is to be pasteurized. It has been repeatedly declared that pasteurization, while an indispensable additional safeguard, can never be substituted for proper production methods. Milk which is neither properly produced nor properly pasteurized is doubly dangerous; but milk which is not properly produced, even though it may apparently have been properly pasteurized, is still not without a modicum of danger, since even the pasteurization process is directed by human hands and, therefore, to some extent subject to human frailty.

Again, if we are to inculcate in the mind of the consumer the proper respect for and confidence in pasteurized milk, it must be possible to assure the consumer not only that the process has been properly carried out but that the milk was of high quality both from the sanitation and esthetic points of view before the pasteurization process was applied. Only in this way can we as health authorities recommend with propriety an increase in the demand for pasteurized milk.

List of Members of Milk Committee

Dr. EARLE G. BROWN, <i>Chairman</i>	Dr. P. B. JENKINS
Dr. JOHN BROWN	Dr. A. C. JOST
Dr. H. D. CHADWICK	Dr. I. C. RIGGIN
Dr. R. O. DAVIDSON	Dr. G. C. RUHLAND
Dr. J. D. DUNSHEE	Dr. F. J. UNDERWOOD
Dr. C. A. HARPER	Dr. WILLIAM WARWICK

List of Consultants to Milk Committee

Dr. S. J. CRUMBINE	Mr. O. E. REED
Mr. L. C. FRANK	Mr. H. A. WHITTAKER

COURT DECISIONS ON PUBLIC HEALTH

Regulation of keeping of pigs.—(New Jersey Court of Errors and Appeals; *Wogisch v. Board of Health of Borough of Moonachie et al.*, 176 A. 602; decided Jan. 10, 1935.) An ordinance of the Borough of Moonachie provided in part as follows:

No person shall have, keep, raise, or maintain any pig or pigs within the limits of the Borough of Moonachie without first having procured from the board of health of the Borough of Moonachie a permit for that purpose. Such permit shall allow the holder thereof to have, keep, raise, or maintain on the premises mentioned in such permit not more than 10 pigs.

All buildings, yards, enclosures, or premises in which any pig or pigs shall be kept, raised, or maintained shall be at all times kept in a sanitary condition.

In a proceeding to review several convictions for violation of these requirements, the court of errors and appeals quoted in full an opinion rendered by the State supreme court in which, among other things, it was said:

Local boards of health have power to regulate the keeping of pigs. [Statutory citation.]

* * * * *

Obviously, the ordinance must be a reasonable exercise of the police power. The fact that the prosecutor owns 21 acres of land seems not pertinent. It is an obvious fact that even in less populated districts more than 10 pigs may be a fit subject of regulation by the authorities charged with the duty to safeguard the public health. There is nothing in the record to indicate an unreasonable exercise of the police power. Nor would it appear that the action taken was arbitrary. Nearly every health code in the State contains regulations concerning the keeping of pigs, since it has long been recognized that the occupation is not one to be followed without reasonable regulation.

It is next suggested that the license fee of \$10 was imposed for revenue purposes only. When it is borne in mind that inspection of premises devoted to the raising of even 10 pigs is necessary, the fee obviously is not unreasonable. It cannot be said that the fee is primarily for revenue purposes. It is true that the members of the board of health serve without compensation and that no paid inspectors are employed. However, the board cannot function without the receipt of fees to meet the necessary expenses of carrying on. The fee exacted broadly is no more than a fee for the expenses incident to the issuance thereof. More work is

involved in the issuance of every license than the mere printing of the paper upon which it is issued. But in the instant case inspection from time to time is necessary.

Injunctive relief granted against maintenance of nuisance by cork manufacturing plant.—(New Jersey Court of Errors and Appeals; *The State, The Board of Health of the Township of Lyndhurst, Respondent, v. United Cork Companies, Appellant*, 176 A. 142; decided Jan. 10, 1935.) There was rendered in this case the following per curiam opinion:

The decree appealed from will be affirmed for the reasons stated in the opinion¹ filed in the court below by Vice Chancellor Lewis, reported in 116 N. J. Eq. 4, 172 A. 347.

DEATHS DURING WEEK ENDED JUNE 29, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended June 29, 1935	Correspond- ing week, 1934
Data from 86 large cities of the United States:		
Total deaths.....	7,514	7,779
Deaths per 1,000 population, annual basis.....	19.5	10.8
Deaths under 1 year of age.....	544	565
Deaths under 1 year of age per 1,000 estimated live births.....	50	52
Deaths per 1,000 population, annual basis, first 26 weeks of year.....	12.2	12.1
Data from industrial insurance companies:		
Policies in force.....	67,900,778	67,791,606
Number of death claims.....	12,274	12,048
Death claims per 1,000 policies in force, annual rate.....	9.4	9.3
Death claims per 1,000 policies, first 26 weeks of year, annual rate.....	10.4	10.6

¹ For an abstract of this opinion see PUBLIC HEALTH REPORTS, Sept. 7, 1934, p. 1661.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for weeks ended July 6, 1935, and July 7, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 6, 1935, and July 7, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934
New England States:								
Maine.....		1		1	81	6	0	0
New Hampshire.....	1				3	65	0	0
Vermont.....		1			41	16	0	0
Massachusetts.....	5	10			166	299	0	0
Rhode Island.....	3				201	21	0	0
Connecticut.....	11	1		2	223	118	1	0
Middle Atlantic States:								
New York.....	27	28		1	1,333	429	11	2
New Jersey.....	17	18	2	1	635	442	0	3
Pennsylvania.....	33	30			644	856	3	14
East North Central States:								
Ohio.....	21	16	1	3	743	387	4	2
Indiana.....	12	3	8	1	28	67	0	0
Illinois.....	39	37	13	5	500	702	11	5
Michigan.....	6	7			748	179	0	0
Wisconsin.....	1	6	11	2	942	821	4	3
West North Central States:								
Minnesota ²	1	9		2	8	40	0	1
Iowa.....	3				13	61	1	0
Missouri.....	14	19	14		39	51	4	0
North Dakota.....	1	3	17		1	59	0	1
South Dakota.....	3	2			42	36	0	0
Nebraska.....	1	4			40	7	0	0
Kansas.....	5	2			55	77	2	0
South Atlantic States:								
Delaware.....		1			5	13	0	0
Maryland ²	4	2	4		32	149	2	0
District of Columbia.....	7	2	1		20	12	2	0
Virginia ²	6	6			76	276	3	1
West Virginia.....	14	11	7	5	84	59	0	1
North Carolina ⁴	4	6		1	8	142	2	0
South Carolina.....	3	1	27	53	5	36	1	0
Georgia ⁴	3						1	0
Florida ⁴	1	6			9	67	0	0
East South Central States:								
Kentucky.....	4	6	7	31	53	213	2	1
Tennessee.....	8	4	3	3	18	22	2	0
Alabama ⁴	16	16	15		24	102	1	0
Mississippi ²	4	6					0	0

See footnotes at end of table.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended July 6, 1935, and July 7, 1934—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934
West South Central States:								
Arkansas.....	3	1	2	3	2	5	2	1
Louisiana ⁴	11	13	15	3	4	50	1	0
Oklahoma ⁴	6	3	17	3	56	25	6	1
Texas ⁴	17	42	39	41	49	219	3	1
Mountain States:								
Montana ¹	3	1		6	38	10	0	0
Idaho.....			1		3	3	0	0
Wyoming ¹		2			15	13	0	2
Colorado.....	5	3			68	398	1	0
New Mexico.....	2			8	2	13	0	1
Arizona.....	1	5	3	4	1	3	0	0
Utah ¹					6	4	0	0
Pacific States:								
Washington.....	1	1		1	103	69	5	3
Oregon ¹		2	4	17	66	9	1	1
California.....	20	32	20	14	477	209	2	1
Total.....	347	369	231	211	7,706	6,860	78	35
First 27 weeks of year.....	15,878	18,160	102,548	46,811	675,961	651,646	3,708	1,413

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934
New England States:								
Maine.....	1	0	16	14	0	0	1	1
New Hampshire.....	0	1	6	2	0	0	0	0
Vermont.....	0	0	1		0	0	0	0
Massachusetts.....	1	0	105	71	0	0	2	1
Rhode Island.....	1	0	1	4	0	0	1	1
Connecticut.....	0	0	23	14	0	0	0	1
Middle Atlantic States:								
New York.....	11	7	286	173	0	0	7	5
New Jersey.....	0	2	41	41	0	0	3	16
Pennsylvania.....	0	2	209	177	0	0	12	14
East North Central States:								
Ohio.....	1	1	113	177	2	0	25	9
Indiana.....	0	0	22	31	3	0	8	5
Illinois.....	2	3	303	190	1	2	12	35
Michigan.....	2	0	102	113	2	0	10	5
Wisconsin.....	1	1	199	87	19	9	5	2
West North Central States:								
Minnesota ¹	1	1	74	31	7	1	22	2
Iowa.....	0	0	24	17	10	4	0	3
Missouri.....	1	0	15	25	1	2	12	23
North Dakota.....	0	0	9	4	1	1	0	1
South Dakota.....	1	1	10	1	6	0	2	0
Nebraska.....	0	0	9	8	17	4	0	0
Kansas.....	1	1	23	15	4	0	5	10
South Atlantic States:								
Delaware.....	0	0	3	2	0	0	2	0
Maryland ¹¹	1	1	18	15	0	0	4	9
District of Columbia.....	0	0	12	7	0	0	0	1
Virginia ¹⁴	28	1	8	15	0	0	11	18
West Virginia.....	1	3	25	18	0	0	8	11
North Carolina ⁴	55	0	15	11	0	0	28	6
South Carolina.....	0	0	2	1	0	0	29	19
Georgia ⁴	0	0		1	0	0	19	39
Florida ⁴	2	0	5		0	0	4	2

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 6, 1935, and July 7, 1934—Continued

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934
East South Central States:								
Kentucky.....	0	5	22	1	3	16	79	
Tennessee.....	5	1	11	8	0	30	21	
Alabama ¹	2	0	8	5	0	22	20	
Mississippi ²	0	0	5	7	0	9	16	
West South Central States:								
Arkansas.....	0	0	3	1	4	17	21	
Louisiana ³	3	0	1	2	0	6	7	
Oklahoma ⁴	1	0	1	3	0	19	19	
Texas ⁵	2	5	14	30	4	43	66	
Mountain States:								
Montana ¹	0	3	9	5	9	3	2	
Idaho.....	0	4	4	1	0	0	0	
Wyoming ²	0	0	7	17	8	0	0	
Colorado.....	0	0	40	10	3	2	5	
New Mexico.....	0	0	7	2	0	0	5	
Arizona.....	0	2	6	2	0	0	4	
Utah ³	0	1	37	2	0	0	0	
Pacific States:								
Washington.....	0	2	17	18	15	1	3	
Oregon ¹	0	2	18	19	3	6	2	
California.....	32	266	79	70	4	3	9	
Total	156	316	1,946	1,496	124	61	518	
First 27 weeks of year	1,181	2,415	173,424	141,943	4,976	3,580	5,723	

¹ New York City only.

² Rocky Mountain spotted fever, week ended July 6, 1935, 14 cases, as follows: Minnesota, 1; Maryland 1; Virginia, 2; Montana, 1; Wyoming, 7; Oregon, 2.

³ Week ended earlier than Saturday.

⁴ Typhus fever, week ended July 6, 1935, 25 cases, as follows: Virginia, 1; North Carolina, 1; Georgia, 8; Florida, 1; Alabama, 9; Louisiana, 1; Texas, 4.

⁵ Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Menin-gococ-cus menin-gitis	Diph-theria	Influ-enza	Malaria	Measles	Pel-lagra	Polio-my-e-litis	Scarlet fever	Small-pox	Ty-phoid fever
<i>May 1935</i>										
Nevada.....	5	3	3	-----	317	-----	0	6	0	25
North Dakota.....	1	6	9	-----	112	-----	0	241	1	21
Puerto Rico.....	-----	56	31	810	96	-----	9	1	0	-----
<i>June 1935</i>										
Connecticut.....	2	35	4	-----	2,323	-----	2	260	0	6
Delaware.....	2	7	-----	-----	59	-----	0	17	0	3
Florida.....	3	23	1	56	38	7	1	12	0	10
Indiana.....	11	51	27	-----	348	1	2	232	4	-----

May 1935		May 1935—Continued		June 1935—Continued	
Chicken pox:	Cases	Whooping cough:	Cases	Mumps:	Cases
Nevada.....	43	Nevada.....	13	Connecticut.....	151
North Dakota.....	90	North Dakota.....	51	Delaware.....	55
Puerto Rico.....	122	Puerto Rico.....	173	Florida.....	64
Dysentery:				Indiana.....	90
Puerto Rico.....	33			Paratyphoid fever:	
Mumps:				Connecticut.....	20
North Dakota.....	46	Chicken pox:		Indiana.....	2
Puerto Rico.....	54	Connecticut.....	522	Rabies in animals:	
Ophthalmia neonatorum:		Delaware.....	7	Connecticut.....	3
Puerto Rico.....	5	Florida.....	16	Indiana.....	89
Paratyphoid fever:		Indiana.....	89	Rabies in man:	
Puerto Rico.....	3	Conjunctivitis, infectious:		Indiana.....	1
Puerperal septicemia:		Connecticut.....	40	Septic sore throat:	
Puerto Rico.....	6	Delaware.....	1	Connecticut.....	21
Rocky Mountain spotted fever:		Dengue:		Typhus fever:	
Nevada.....	1	Florida.....	1	Florida.....	3
Tetanus:		Dysentery:		Undulant fever:	
Puerto Rico.....	9	Connecticut (bacillary).....	3	Connecticut.....	2
Tetanus, infantile:		Florida (amoebic).....	2	Florida.....	52
Puerto Rico.....	3	Epidemic encephalitis:		Indiana.....	2
Trachoma:		Connecticut.....	1	Whooping cough:	
Puerto Rico.....	2	Delaware.....	1	Connecticut.....	225
Vincent's infection:		Indiana.....	1	Delaware.....	7
North Dakota.....	1	German measles:		Florida.....	51
		Connecticut.....	1,072	Indiana.....	105
		Delaware.....	4		

PLAGUE-INFECTED GROUND SQUIRRELS IN MODOC COUNTY, CALIF.

Under date of July 5, 1935, the Director of Public Health of California reported positive findings for plague in 8 ground squirrels received at the laboratory on June 17 from ranches 2 to 3 miles east and 1 mile south of Alturas, and in 1 ground squirrel received at the laboratory on June 21 from a ranch 5 miles north of Alturas.

WEEKLY REPORTS FROM CITIES

City reports for week ended June 29, 1935

This table summarizes the reports received regularly from a selected list of 121 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Small-pox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths all causes
	Cases	Deaths								
Maine:										
Portland.....	0	0	13	0	0	0	0	0	1	20
New Hampshire:										
Concord.....										
Nashua.....	0		0		0	0		0	0	
Vermont:										
Barre.....										
Burlington.....	0	1	1	0	0	0	0	0	0	9
Rutland.....	0		0		2	0	0	0	4	6
Massachusetts:										
Boston.....	3	0	34	10	34	0	7	0	9	208
Fall River.....	0	0	4	0	6	0	1	0	2	34
Springfield.....	0	0	27	0	17	0	3	0	3	40
Worcester.....	0	0	5	2	10	0	3	0	0	51
Rhode Island:										
Pawtucket.....	0	0	0	0	0	0	0	0	0	12
Providence.....	1	0	196	2	5	0	3	0	5	49
Connecticut:										
Bridgeport.....	1	0	15	1	7		0	0	2	22
Hartford.....	0	0	3	0	6		1	0	12	38
New Haven.....	0	0	30	2	0		0	0	3	35
New York:										
Buffalo.....	0	0	18	9	40	0	7	0	29	120
New York.....	25	2	799	100	172	0	62	9	115	1,355
Rochester.....										
Syracuse.....	0	0	331	1	8	0	1	0	26	51

City reports for week ended June 29, 1935—Continued

State and city	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Small-pox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths, all causes
	Cases	Deaths								
New Jersey:										
Camden	4	0		2	4	0	2	0	3	19
Newark	0	2	0	141	5	0	2	0	37	71
Trenton	0	0	0	1	1	2	0	0	0	30
Pennsylvania:										
Philadelphia	2	0	38	18	41	0	18	61	75	390
Pittsburgh	4	1	75	8	24	0	9	0	28	152
Reading	0	0	48	0	4	0	1	0	0	19
Scranton	0		6		4	0		0	1	
Ohio:										
Cincinnati	0	0	6	3	5	0	2	1	6	120
Cleveland	6	10	284	16	30	0	8	0	38	177
Columbus	0	0	32	4	8	0	3	0	4	77
Toledo	0	0	43	1	10	0	7	0	9	63
Indiana:										
Anderson	1	0	0	0	1	0	0	0	2	7
Fort Wayne	2	0	0	1	2	0	0	0	0	17
Indianapolis	2	0	19	13	7	0	7	1	13	110
South Bend	0	0	1	0	0	0	1	0	1	15
Terre Haute	0	0	0	0	0	0	0	0	0	19
Illinois:										
Alton	0	0	0	2	4	0	0	0	0	9
Chicago	29	5	361	46	248	0	33	5	109	659
Elgin	0	0	2	2	5	0	1	0	0	8
Moline	0	0	0	0	0	0	0	0	0	6
Springfield	0	0	3	1	3	0	1	0	8	20
Michigan:										
Detroit	5	1	122	17	36	0	14	1	101	231
Flint	1	0	2	1	6	0	1	0	5	19
Grand Rapids	0	0	48	1	22	0	1	0	22	22
Wisconsin:										
Kenosha	0	0	1	0	3	0	0	0	4	2
Milwaukee	0	0	325	1	51	0	3	0	33	93
Racine	0	0	72	1	16	0	1	0	23	11
Superior	0	0	3	0	1	0	0	0	2	8
Minnesota:										
Duluth	0	0	7	1	3	0	0	1	2	18
Minneapolis	1	0	14	1	45	0	1	23	1	114
St. Paul	0	0	24	5	12	1	1	3	10	53
Iowa:										
Cedar Rapids	0	0	1	0	0	0	0	0	2	
Davenport	1	0	0	0	1	0	0	0	0	
Des Moines	2	0	1	0	3	0	0	0	0	30
Sioux City	0	0	0	0	1	6	0	0	4	
Waterloo	1	0	0	0	0	0	0	0	4	
Missouri:										
Kansas City	2	0	18	7	2	0	4	0	1	95
St. Joseph	0	0	1	4	0	0	0	0	0	32
St. Louis	8	1	13	3	3	0	7	1	10	182
North Dakota:										
Fargo	0	0	0	0	2	0	0	3	1	7
Grand Forks	0	0	3	0	0	0	0	0	1	
South Dakota:										
Aberdeen	0	0	2	0	1	0	0	0	0	
Nebraska:										
Omaha	0	0	10	1	4	1	1	0	1	66
Kansas:										
Lawrence	0	0	1	0	0	0	0	1	0	2
Topeka	0	0	10	3	2	0	0	0	25	35
Wichita	0	0			1	1	0	0	4	29
Delaware:										
Wilmington	1	0	1	1	1	0	1	0	0	25
Maryland:										
Baltimore	3	2	1	9	15	16	0	14	0	36
Cumberland	0	0	1	1	0	0	1	0	0	29
Frederick	0	0	0	0	0	0	0	0	0	2
District of Col.:										
Washington	9	1	1	9	5	7	0	9	3	126
Virginia:										
Lynchburg	0	0	2	1	0	0	0	0	35	8
Norfolk	1	0	1	0	0	0	0	1	0	21
Richmond	0	1	11	0	2	0	3	0	0	57
Roanoke	1	0	2	0	1	0	0	1	0	14
West Virginia:										
Charleston	0	0	0	0	0	0	1	0	1	10
Huntington	1	2			0	0	0	0	0	
Wheeling	0	0	33	0	0	0	0	0	2	14

City reports for week ended June 29, 1935—Continued

State and city	Diphtheria, cases		Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Small-pox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths, all causes
	Cases	Deaths	Cases	Deaths								
North Carolina:												
Gastonia.....	0				1		0	0		0	2	1
Raleigh.....												
Wilmington.....	0	0	0	0	0	0	0	0	0	0	5	7
Winston-Salem.....	0	0	0	0	0	0	0	0	0	1	3	16
South Carolina:												
Charleston.....	C	2		0	1	0	0	1	0	0	0	13
Columbia.....			0	1	1			0				10
Florence.....	0	0	0	1	0	0	0	0	0	0	0	12
Greenville.....	0	0	C	4	0	0	0	0	0	0	0	27
Georgia:												
Atlanta.....	2	2	0	1	3	2	0	4	1	26	62	62
Brunswick.....	6	0	0	0	1	0	0	0	1	0	0	6
Savannah.....	0	0	0	0	2	0	0	1	0	0	5	27
Florida:												
Miami.....	2		0	3	2	3	0	2	0	3	3	23
Tampa.....	1			0		0	0		1	0		22
Kentucky:												
Ashland.....												
Covington.....	0		0	0	1	1	0	2	0	1		27
Lexington.....	0	0	0	5	0	0	0	1	0	0		17
Tennessee:												
Knoxville.....	1		0	4	1	2	0	0	0	0	0	24
Memphis.....	0		1	0	4	4	0	5	2	16	108	108
Nashville.....	0		0	1	4	1	0	2	0	17	60	60
Alabama:												
Birmingham.....	1	6	0	6	1	2	0	6	2	6	6	57
Mobile.....	0		1	1	2	1	0	0	0	0	0	23
Montgomery.....	1			0		0	0		1	0		
Arkansas:												
Fort Smith.....	1			0		0	0		1	0		
Little Rock.....	0		0	0	0	1	0	2	0	0		2
Louisiana:												
New Orleans.....	2		0	4	10	4	0	18	6	0	0	141
Shreveport.....	1		0	0	2	0	0	4	0	1		45
Texas:												
Dallas.....	1		0	1	1	4	0	2	0	1		54
Fort Worth.....	0		0	0	0	3	0	2	0	1		32
Galveston.....	0		0	1	4	0	0	0	0	0		14
Houston.....	2		0	1	9	2	0	4	2	4		73
San Antonio.....	0		0	1	1	0	0	6	3	0		76
Montana:												
Billings.....	0		0	5	1	2	0	0	0	2		4
Great Falls.....	0		0	0	1	0	0	0	0	4		9
Helena.....	0		0	3	0	0	0	0	0	8		4
Missoula.....	6		0	0	0	0	0	0	1	0		4
Idaho:												
Boise.....	0		0	3	0	0	C	0	0	0		13
Colorado:												
Colorado Springs.....	0		0	2	1	10	0	2	0	0		10
Denver.....	9		0	39	6	16	0	5	0	1		68
Pueblo.....	0		0	3	1	2	0	0	0	0		7
New Mexico:												
Albuquerque.....	0		C	0	0	0	0	6	0	3		17
Utah:												
Salt Lake City.....	0		0	5	4	33	0	0	0	43		32
Nevada:												
Reno.....	0		0	0	0	0	C	0	0	0		2
Washington:												
Seattle.....	0			157		12	0		2	2		
Spokane.....	0		0	6	4	2	0	0	0	1		36
Tacoma.....	0		0	1	2	0	3	1	0	0		20
Oregon:												
Portland.....	0		0	26	5	3	0	4	0	0		95
Salem.....	0	4		2		0	0		0	0		
California:												
Los Angeles.....	9	21	0	63	15	28	2	19	1	14		276
Sacramento.....	3		0	32	0	15	0	3	0	1		23
San Francisco.....	1		1	66	5	9	0	8	2	8		119

City reports for week ended June 29, 1935—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				North Carolina:			
Boston.....	0	1	0	Winston-Salem.....	1	0	0
New York:				South Carolina:			
Buffalo.....	0	0	1	Greenville.....	1	1	0
New York.....	9	3	5	Georgia:			
New Jersey:				Atlanta.....	1	0	0
Camden.....	0	0	1	Florida:			
Newark.....	0	0	1	Miami.....	0	0	1
Pennsylvania:				Tennessee:			
Philadelphia.....	1	1	0	Memphis.....	0	0	1
Pittsburgh.....	0	1	0	Alabama:			
Ohio:				Montgomery.....	1	0	0
Cincinnati.....	1	0	0	Arkansas:			
Cleveland.....	3	2	0	Forth Smith.....	1		0
Toledo.....	1	0	1	Louisiana:			
Illinois:				New Orleans.....	0	0	4
Chicago.....	2	4	1	Texas:			
Michigan:				Dallas.....	1	1	0
Detroit.....	2	2	1	New Mexico:			
Minnesota:				Albuquerque.....	0	1	0
St. Paul.....	1	0	0	Utah:			
Missouri:				Salt Lake City.....	1	1	0
St. Louis.....	0	1	0	Washington:			
Nebraska:				Seattle.....	1	0	0
Omaha.....	0	1	0	Spokane.....	0	1	0
Maryland:				Oregon:			
Baltimore.....	2	0	0	Portland.....	1	1	0
District of Columbia:				California:			
Washington.....	4	3	0	Los Angeles.....	2	0	20
Virginia:				Sacramento.....	1	2	0
Lynchburg.....	0	0	2				
Norfolk.....	2	2	0				
Richmond.....	0	0	6				

Epidemic encephalitis.—Cases: New York, 4; Pittsburgh, 1; Cleveland, 1; Toledo, 1; Chicago, 2; St. Paul, 1; Kansas City, Mo., 1; New Orleans, 1.

Pellagra.—Cases: Philadelphia, 2; Atlanta, 1; Savannah, 3; Miami, 1; San Francisco, 5.

Rabies in man.—Los Angeles, 1 death.

Typhus fever.—Cases: Savannah, 2; Montgomery, 2.

FOREIGN AND INSULAR

CANADA

Vital statistics—Fourth quarter 1934—Comparative.—The Bureau of Statistics of the Dominion of Canada has published the following preliminary statistics for the fourth quarter of 1934. The rates are computed on an annual basis. There were 19.1 live births per 1,000 population during the fourth quarter of 1934 and 19.2 per 1,000 population in the same quarter of 1933. The death rate was 9.3 per 1,000 population for the fourth quarter of 1934 and the same rate for the fourth quarter of 1933. The infant-mortality rate for the fourth quarter of 1934 was 75.0 per 1,000 live births and 72.6 in the same period of 1933. The maternal death rate was 5.2 per 1,000 live births for the fourth quarter of 1934 and 5.1 for the same quarter of 1933.

The accompanying tables give the numbers of births, deaths, and marriages by Provinces for the fourth quarter of 1934, and deaths from certain causes in Canada for the fourth quarter of 1934, and the corresponding quarter of 1933, and by Provinces for the fourth quarter of 1934:

Number of births, deaths, and marriages, fourth quarter, 1934

Province	Live births	Deaths (exclusive of still-births)	Deaths under 1 year of age	Maternal deaths	Marriages
Canada ¹	51,964	25,380	3,896	271	20,828
Prince Edward Island.....	441	269	40	4	183
Nova Scotia.....	2,662	1,420	174	17	1,158
New Brunswick.....	2,385	1,143	229	11	907
Quebec.....	17,636	7,971	1,821	97	4,361
Ontario.....	14,559	8,731	848	77	6,816
Manitoba.....	3,235	1,349	177	15	1,772
Saskatchewan.....	4,787	1,527	280	17	2,285
Alberta.....	3,894	1,338	208	18	2,068
British Columbia.....	2,365	1,632	112	15	1,278

¹ Exclusive of Yukon and the Northwest Territories.

Deaths

Cause of death	Canada ¹ (fourth quarter)		Province, fourth quarter 1934								
	1933	1934	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Automobile accidents.....	263	333	1	6	21	73	151	18	13	19	31
Cancer.....	2,737	2,776	28	185	107	717	1,045	188	168	134	204
Diarrhea and enteritis.....	841	1,045	5	20	63	683	189	18	30	21	16
Diphtheria.....	70	71	1	1	1	44	6	13	2	1	2
Diseases of arteries.....	1,750	1,860	20	106	61	342	967	97	58	81	123
Diseases of the heart.....	4,063	4,131	32	182	143	998	1,805	213	226	214	313
Homicide.....	25	37	-----	-----	1	11	11	4	4	3	3
Influenza.....	571	489	8	24	22	183	114	10	39	52	37
Measles.....	21	83	-----	9	12	48	2	6	6	-----	-----
Nephritis.....	1,356	1,360	17	70	47	599	388	47	65	67	70
Pneumonia.....	1,736	1,577	25	80	77	478	498	119	114	98	88
Polioomyelitis.....	13	24	-----	2	2	2	14	-----	2	2	-----
Puerperal causes.....	261	271	4	17	11	97	77	15	17	18	15
Scarlet fever.....	62	78	1	4	9	46	14	1	3	-----	-----
Smallpox.....	-----	1	-----	-----	-----	-----	-----	-----	-----	1	-----
Suicide.....	211	233	2	3	3	27	92	20	24	20	23
Tuberculosis.....	1,470	1,414	12	83	62	606	300	81	67	65	138
Typhoid fever and paratyphoid fever.....	88	82	1	1	2	45	16	4	8	3	2
Other violent deaths.....	931	992	6	62	42	214	385	53	72	63	95

¹ Exclusive of Yukon and the Northwest Territories.

CEYLON

Malaria.—According to a report dated May 13, 1935, the second epidemic of malaria in Ceylon which began to rise during the second week of April reached its height toward the end of the month and during the week ended May 4, 1935, a fairly general decrease in the number of malarial patients attending hospitals and dispensaries was apparent. The following figures show the weekly dispensary attendance for 3 weeks in the four provinces within the epidemic area:

	Week ended—		
	Apr. 20	Apr. 27	May 4
Western Province.....	25,436	31,429	28,775
Central Province.....	16,741	19,376	17,891
Sabaragamuwa Province.....	26,512	29,449	26,428
Northwestern Province.....	16,586	23,827	22,623
Total.....	85,275	104,061	95,717

CUBA

Habana—Communicable diseases—4 weeks ended June 8, 1935.—During the 4 weeks ended June 8, 1935, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria.....	1	1	Tuberculosis.....	32	13
Malaria.....	124	1	Typhoid fever.....	19	6

¹ Includes imported cases.

YUGOSLAVIA

Communicable diseases—May 1935.—During the month of May 1935 certain communicable diseases were reported in Yugoslavia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	34	3	Paratyphoid fever.....	12	-----
Cerebrospinal meningitis.....	8	2	Scarlet fever.....	222	4
Diphtheria and croup.....	428	25	Sepsis.....	12	4
Dysentery.....	26	1	Tetanus.....	53	21
Erysipelas.....	159	7	Typhoid fever.....	163	23
Influenza.....	883	3	Typhus fever.....	64	5
Measles.....	689	18			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for June 28, 1935, pp. 875-890. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued July 26, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Plague

Argentina.—During the month of June 1935 plague was reported in Argentina as follows: 2 cases, and 2 deaths at Victorica, Pampa Territory, and 1 case with 1 death at Frias, Santiago del Estero Province.

China—Fukiang Province.—According to a report dated July 4, 1935, 76 cases of plague, with 58 deaths, were reported at Chuanchow, Fukiang Province, China. The report also stated that plague was present at Lungyen.

Hawaii Territory—Hamakua District—Hamakua Mill Sector.—On June 27, 1935, 1 plague-infected rat was found in Hamakua Mill Sector, Hamakua District, Hawaii Territory.

Peru.—During the month of May 1935 plague was reported in Peru, as follows: Lambayeque Department, 1 case; Libertad Department, 3 cases, 1 death; Lima City, Lima Department, 6 cases, 4 deaths; 2 other suspected cases of plague with 2 deaths were also reported in Lambayeque Department, and 1 suspected case with 1 death was reported in Libertad Department.

United States—California.—A report of plague-infected ground squirrels in Modoc County, Calif., appears on page 941 of this issue of PUBLIC HEALTH REPORTS.

Smallpox

Iraq—Baghdad.—During the week ended June 8, 1935, 1 case of smallpox with 1 death was reported at Baghdad, Iraq.

Yellow Fever

Brazil.—During the week ended June 29, 1935, yellow fever was reported in Brazil, as follows: Picos, Maranhao State, 1 case, 1 death; Theophilo Ottoni, Minas Geraes State; 2 cases, 2 deaths; Curralinho, Para State, 1 case, 1 death.